

35 U.S.C. § 103 provides that a patent may not be obtained:

If the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Id.

The United States Supreme Court interpreted the standard for 35 U.S.C. § 103 in Graham v. John Deere, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). In Graham, the Court stated that under 35 U.S.C. § 103:

The scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined. 148 U.S.P.Q. at 467.

Using the standard set forth in Graham, the scope and content of the prior art relied upon by the Examiner will be determined.

As to the primary reference applied by the Examiner, U.S. Patent No. 5,575,497 to Suyama et al. discloses a method for developing an air bag for a vehicle. An airbag device A_D for a driver's seat S_D and an airbag device A_N for passenger's seat S_N are disposed in a vehicle laterally symmetrically with each other with respect to a center line of a vehicle body and have substantially the same structure. Each of the air bag devices A_D and A_N includes an inflator I mounted in an outer portion of a seat back S_1 of each of the driver's seat S_D and the passenger's seat S_N for injecting a high pressure gas, a first air bag B_S which is inflated and developed along an inner surface of a side door D by the high pressure gas from the inflator I , and a second air bag B_F which is integrally coupled to the first air bag B_S and inflated and developed along a rear surface of an instrument panel P . The first and second air bags B_S and B_F are formed separately

and united integrally by stitching, and are mounted in their compact folded states in the outer portions of the seat backs S_I along with the inflators. As can be seen by reference also to FIG. 2, two pressure valves V , V are mounted at a joint between the first and second air bags B_S and B_F united integrally by a stitching 1. Each of the pressure valves V is a circular opening 2 defined in the first and second air bags B_S and B_F superposed on each other, and a membrane 4 placed to cover the opening 2 and fixed by a stitching 3. When the membrane 4 is in a state shown by a dashed line in FIG. 2, it air-tightly partitions an internal space in the first air bag B_S and an internal space in the second air bag B_F from each other. When the internal pressure in the first air bag B_S is increased to exceed a predetermined value, the membrane 4 is broken into a state shown by a solid line in FIG. 2 to put the internal space in the first air bag B_S into communication with the internal space in the second air bag B_F . In FIGS. 4A to 4G, air bag devices A_D and A_N are mounted in center pillars and each of the inflators I , I_S , and I_F is mounted in the center pillar in place of mounting in the seat back S_I . Suyama et al. '497 does not disclose a frontal air bag for mounting solely to a front pillar of a vehicle to deploy downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated.

As to the secondary reference applied by the Examiner, U.S. Patent No. 6,123,355 to Sutherland discloses a vehicle occupant safety apparatus. The safety apparatus 10 includes first and second inflators 14 and 16 and first and second inflatable vehicle occupant protection devices in the form of a window air bag or side curtain 20 and a headliner air bag 22. The inflators 14 and 16 and the air bags 20 and 22 are mounted as a module 60 in the vehicle 12. The module 60 or portions thereof including the inflators 14 and 16 may alternatively be mounted near the front of the vehicle 12 on or near the A-pillar or at another location on the vehicle. The first air bag 20, or window air bag, when inflated, extends generally downward in the vehicle 12

along the side of the window 44. The second air bag 22, or headliner bag, when inflated, extends generally laterally in the vehicle 12, between the roof 46 and the headliner 48. Sutherland does not disclose a frontal air bag for mounting solely to a front pillar of a vehicle to deploy downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated.

In contradistinction, claim 21 claims the present invention as a frontal air bag system for a vehicle including a frontal air bag adapted for mounting solely to a front pillar of the vehicle. The frontal air bag is adapted to be inflated and extend downward and sideways in a lateral direction in front of an occupant seated in the vehicle.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (CCPA 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”)

As to the differences between the prior art and the claims at issue, Suyama et al. '497 merely discloses a method for developing an air bag for a vehicle in which an air bag is stored in a seat back having a first air bag inflated upwardly along a side door and a second air bag coupled to the first air bag inflated upwardly along a rear surface of an instrument panel. Suyama et al. '497 lacks a frontal air bag for mounting solely to a front pillar of a vehicle to deploy downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated. In Suyama et al. '497, the second air bag B_F is an extension of the first air bag B_S , which is a side air bag. Although Suyama et al. '497 discloses that air bag devices A_D and A_N are mounted in a center pillar, it only expressly discloses that each of the inflators I , I_S and I_F is mounted in the center pillar in place of mounting in the seat back S_I and does not disclose that the first and second air bags B_S and B_F are mounted in a front pillar.

Contrary to the Examiner's statement, Suyama et al. '497 does not disclose, in Col. 1, lines 65 through 67, that a single frontal air bag is mounted on the roof of the vehicle, wherein the frontal air bag is adapted to be inflated and extend downward and sideways in a lateral direction in front of an occupant seated in the vehicle. In Suyama et al. '497, Col. 1, lines 65 through 67 state:

In addition, the front and side of the occupant can be held by the single air back and therefore, it is possible to provide reductions in the number of parts, in size of the air bag device and in manufacturing cost.

Therefore, Suyama et al. '497 does not suggest how to deploy a frontal air bag from the A-pillar downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated. Thus, it cannot be obvious that a roof mounted air bag of Suyama et al. '497 could during deployment extend downward from the roof and side way in the lateral

direction to protect the occupant. The Examiner may not, because he doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. See In re Warner, 379 F. 2d 1011, 154 U.S.P.Q. 173 (C.C.P.A. 1967).

Sutherland '355 merely discloses a vehicle occupant safety apparatus having an air bag module or portions thereof including the inflators mounted near the front of the vehicle on or near the A-pillar or at another location on the vehicle. Sutherland '355 lacks a frontal air bag for mounting solely to a front pillar of a vehicle to deploy downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated. There is no suggestion or motivation for combining Suyama et al. '497 and Sutherland '355 together.

There is absolutely no teaching of a level of skill in the inflatable restraint art that a frontal air bag system can be constructed as a frontal air bag for mounting solely to a front pillar of a vehicle to deploy downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated. The Suyama et al. '497 and Sutherland '355 reference skirt around, but do not suggest the claimed invention as a whole. See Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1383 (Fed. Cir. 1986). While Suyama et al. '497 teaches that the first air bag is developed into a space between the occupant and a side door and the second air bag is developed into a space between the occupant and an instrument panel, Suyama et al. '497 does not teach inflating and extending an air bag from a front or A-pillar downward and sideways in a lateral direction in front of an occupant seated in the vehicle. In addition, while Sutherland '355 teaches that an air bag module or portions thereof including the inflators may be mounted near the front of the vehicle on or near the A-pillar, Sutherland '355 does not teach that a frontal air bag is mounted solely to a front pillar or inflating and extending an air bag from a front or A-

pillar downward and sideways in a lateral direction in front of an occupant seated in the vehicle. Thus, none of the references teaches a level of skill in the art of inflatable restraints that can be constructed as a frontal air bag for mounting solely to a front pillar of a vehicle to deploy downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated.

Even if these references could be combined, the combination is deficient because neither reference teaches a frontal air bag being deployed from a front or A-pillar downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated. Applicants are not attacking the references individually, but are clearly pointing out that each reference is deficient and, if combined (although Applicants maintain that they are not combinable), the combination is deficient. The present invention sets forth a unique and non-obvious combination of a frontal air bag system that includes a frontal air bag that deploys downwardly and sidewardly into position and not rearwardly towards the occupant. The references, if combinable, fail to teach or suggest the combination of a frontal air bag system including a frontal air bag adapted for mounting solely to a front pillar of a vehicle to deploy downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated as claimed by Applicants. The Examiner has failed to establish a case of prima facie obviousness. Therefore, it is respectfully submitted that claim 21 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

As to claim 33, claim 33 claims the present invention as a frontal air bag system for a vehicle including a single frontal air bag adapted for mounting solely to a pillar of the vehicle. The frontal air bag is adapted to be inflated and extend downward and sideways in a lateral direction in front of an occupant seated in the vehicle.

As to the differences between the prior art and the claims at issue, Suyama et al. '497 merely discloses a method for developing an air bag for a vehicle in which an air bag is stored in a seat back having a first air bag inflated upwardly along a side door and a second air bag coupled to the first air bag inflated upwardly along a rear surface of an instrument panel. Suyama et al. '497 lacks a single frontal air bag for mounting solely to a pillar of a vehicle to be inflated and extended downward and sideways in a lateral direction in front of an occupant seated in the vehicle. In Suyama et al. '497, the second air bag B_F is an extension of the first air bag B_S , which is a side air bag. Although Suyama et al. '497 discloses that air bag devices A_D and A_N are mounted in a center pillar, it only expressly discloses that each of the inflators I , I_S and I_F is mounted in the center pillar in place of mounting in the seat back S_1 and does not disclose that the first and second air bags B_S and B_F are mounted in a front pillar.

Contrary to the Examiner's statement, Suyama et al. '497 does not disclose, in Col. 1, lines 65 through 67, that a single frontal air bag is mounted on the roof of the vehicle, wherein the frontal air bag is adapted to be inflated and extend downward and sideways in a lateral direction in front of an occupant seated in the vehicle. In Suyama et al. '497, Col. 1, lines 65 through 67 state:

In addition, the front and side of the occupant can be held by the single air back and therefore, it is possible to provide reductions in the number of parts, in size of the air bag device and in manufacturing cost.

Therefore, Suyama et al. '497 does not suggest how to deploy a single frontal air bag from a pillar to extend downward and sideways in a lateral direction in front of an occupant seated in the vehicle. Thus, it cannot be obvious that a roof mounted air bag of Suyama et al. '497 could during deployment extend downward from the roof and side way in the lateral

direction to protect the occupant. The Examiner may not, because he doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. See In re Warner, 379 F. 2d 1011, 154 U.S.P.Q. 173 (C.C.P.A. 1967).

Sutherland '355 merely discloses a vehicle occupant safety apparatus having an air bag module or portions thereof including the inflators mounted near the front of the vehicle on or near the A-pillar or at another location on the vehicle. Sutherland '355 lacks a single frontal air bag for mounting solely to a pillar of a vehicle to be inflated and extended downward and sideways in a lateral direction in front of an occupant seated in the vehicle. There is no suggestion or motivation for combining Suyama et al. '497 and Sutherland '355 together.

There is absolutely no teaching of a level of skill in the inflatable restraint art that a frontal air bag system can be constructed as a single frontal air bag for mounting solely to a pillar of a vehicle to be inflated and extended downward and sideways in a lateral direction in front of an occupant seated in the vehicle. The Suyama et al. '497 and Sutherland '355 reference skirt around, but do not suggest the claimed invention as a whole. See Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1383 (Fed. Cir. 1986). While Suyama et al. '497 teaches that the first air bag is developed into a space between the occupant and a side door and the second air bag is developed into a space between the occupant and an instrument panel, Suyama et al. '497 does not teach inflating and extending an air bag from a pillar downward and sideways in a lateral direction in front of an occupant seated in the vehicle. In addition, while Sutherland '355 teaches that air bag module or portions thereof including the inflators may be mounted near the front of the vehicle on or near the A-pillar, Sutherland '355 does not teach that a single frontal air bag is inflated and extended downward and sideways in a lateral direction in

front of an occupant seated in the vehicle. Thus, none of the references teaches a level of skill in the art of inflatable restraints that can be constructed as a single frontal air bag for mounting solely to a pillar of a vehicle to be inflated and extended downward and sideways in a lateral direction in front of an occupant seated in the vehicle when inflated.

Even if these references could be combined, the combination is deficient because neither reference teaches a single frontal air bag to be inflated and extended downward and sideways in a lateral direction in front of an occupant seated in the vehicle. Applicants are not attacking the references individually, but are clearly pointing out that each reference is deficient and, if combined (although Applicants maintain that they are not combinable), the combination is deficient. The present invention sets forth a unique and non-obvious combination of a frontal air bag system that includes a frontal air bag that deploys downwardly and sidewardly into position and not rearwardly towards the occupant. The references, if combinable, fail to teach or suggest the combination of a frontal air bag system for a vehicle including a single frontal air bag adapted for mounting solely to a pillar of the vehicle wherein the frontal air bag is adapted to be inflated and extend downward and sideways in a lateral direction in front of an occupant seated in the vehicle.

Further, the CAFC has held that “[t]he mere fact that prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification”. In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). The Examiner has failed to show how the prior art suggested the desirability of modification to achieve Applicants’ invention. Thus, the Examiner has failed to establish a case of prima facie obviousness. Therefore, it is respectfully submitted that claim 33 is allowable over the rejection under 35 U.S.C. § 103.

Claim 25 was rejected under 35 U.S.C. § 103 as being unpatentable over Suyama et al. '497 as modified by Sutherland '355 and further in view of Wipasuramonton et al. (U.S. Patent No. 5,615,909). Applicants respectfully traverse this rejection for the same reasons given above to claim 21.

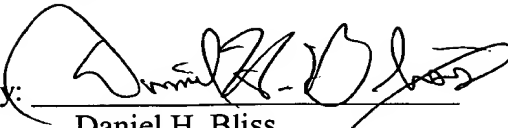
Claims 26 and 27 were rejected under 35 U.S.C. § 103 as being unpatentable over Suyama et al. '497 as modified by Sutherland '355 and further in view of Boerger (U.S. Patent No. 6,050,596). Applicants respectfully traverse this rejection for the same reasons given above to claim 21.

Claims 22, 28, and 29 were rejected under 35 U.S.C. § 103 as being unpatentable over Suyama et al. '497 as modified by Sutherland '355 and further in view of Yamada (U.S. Patent No. 5,884,937). Applicants respectfully traverse this rejection for the same reasons given above to claim 21.

Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis which is supportive of his position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968)), the rejections of claims 21 through 33 are improper. Therefore, it is respectfully submitted that claims 21 through 33 are allowable over the rejections under 35 U.S.C. § 103.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,

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